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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,992	02/13/2002	William A. Burris	1111 008 301 0252	6883

37211 7590 09/12/2011

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EXAMINER	
CONLEY, SEAN EVERETT	
ART UNIT	**PAPER NUMBER**
1775	

NOTIFICATION DATE	DELIVERY MODE
09/12/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/074,992	BURRIS ET AL.	
	Examiner	Art Unit	
	SEAN E. CONLEY	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 June 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-3,5,7-18,20-31,33 and 34* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-3, 5, 7-18, 20-31, 33-34* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed June 20, 2011 has been received and considered for examination. Claims 1-3, 5, 7-18, 20-31, and 33-2324 are presently pending.

2. The Examiner confirms that the previous office action mailed on February 18, 2011 was a non-final office action.

Response to Arguments

3. Applicant's arguments, filed June 20, 2011, with respect to claims 1-3, 5, 7-18, 20-31, and 33-34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-3, 5, 7, 9, 18, 20-23, 25-31, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Contreras (U.S. patent No. 5,824,243) in view of Burris (U.S. patent No. 5,207,993).

Contreras teaches a water ozonating system having a corona discharge ozone generator coupled to a water reservoir and to the pressurized continuous liquid re-

circulation system, to dispense active, disinfecting ozonated water to the circulation lines of a dental operatory unit to kill microorganisms therein. A check valve is provided to ensure that water does not reach the ozone generator and pressure control means are provided including a pump (10) for pressurized circulation and thus pressure regulation of the ozonated water. The pump (10) is fully capable of dispensing the ozonated liquid from the recirculation passageway. Control means are further provided to control activation, operation and delivery of the water (ball valve (3) to control water flow, a float valve (4) to regulate the incoming water level, and a water flow sensor (20) to activate the pump (10) (see col. 2, lines 58-68; see col. 3, lines 47-50)).

Ozone is mixed with the water via an ozone mixing system that includes a diffuser (19) in the water reservoir and the venture which enables ozone to be injected into the water from the pump means. Contreras specifically discloses by example that when demand requires 10 GPM of ozone water the pump (10) will satisfy demand and at the same time re-circulate 20 GPM of water thus producing a greater amount of ozone water than that is demanded by the operatory unit (see col. 3, lines 31-33). Furthermore, the limitation of "to produce a quantity of ozonated liquid that is, when the device is operating, greater than the amount that is demanded by the operatory unit" is a functional limitation directed to the intended use of the device and the device of Contreras teaches an ozone mixing system that is capable of being used as claimed. Specifically, Contreras discloses mixing generated ozone with water to produce an ozonated liquid that is available on demand and in a concentration sufficient to

decontaminate and sterilize (see cols. 3-4). Off gas is captured and returned to the reservoir (see the abstract, column 3, lines 35- 68 and column 4, lines 11-20).

Burris et al., '993 teach a water purification device for point-of-use application wherein there is a liquid source, a corona discharge ozone generator, hydrophobic means (element (24)) for preventing access to the ozone reducer by the liquid (see col. 3, lines 44-56), hydrophobic means for preventing liquid from entering the ozone generator (see col. 2, lines 56-62), means for mixing the ozone and liquid, means for circulating the ozonated liquid, means for separating excess ozone gas from the ozonated liquid and destroying that excess ozone prior to atmospheric release, and means for maintaining the liquid source. Burris et al., '993 provide a positive pressure pump for mixing and circulating the ozonated water, while teaching the equivalence of static diffusers and venturi means, as well. Burris et al., '993 teach the use of the device for provision within offices or compact location such as under sinks (see column 2, lines 40-68, column 3, lines 5-35 and 55-68, column 4, line 23 through column 5, line 35, and the figures).

It would have been well within the purview of one of ordinary skill in the art to employ the ozone off-gas destruction means of Burris in the system of Contreras, because it would provide for the safe disposal of the off-gas if the system requires abrupt shut-down which would not allow for the time consuming, natural dissipation of the off-gas as required by return of the off-gas to the reservoir.

Furthermore, Burris discloses a control system (30) which includes an ozone sensor (25) located in the liquid passageway and an alarm to indicate that the system is

not functioning properly. The activation of the alarm results in the ozone generator shutting down (see col. 4, lines 23-33). The control system (30) controls operation of pumping system (20), ozone generator (15) (see col. 3, lines 57-68). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Contreras and employ a control system comprising an ozone sensor and alarm as exemplified by Burris in order to ensure that the water contains dissolved ozone. Furthermore, the control system is capable of automatically shutting down the pump system (20) in response to a lack of supply water such as during a period of non-use (see col. 4, lines 33-34).

With respect to claim 2, Contreras discloses a pressure regulation means (pump (10) for maintaining proper pressure in the liquid circulation passageway (waterlines (15) and (11)) (see col. 3, lines 10-35).

With respect to claim 5, Contreras discloses an ozone generator (17) (see figure; see col. 3, lines 35-40) which is capable of generating more ozone than can be dissolved in water if that is the desired intended use of the device. One could reduce the water flow using the ball valve (3) such that only a few drops of water enter the storage tank (2) and thus the ozone filling the reservoir would be more than can be dissolved in the liquid flow. Therefore, the ozone generator is of size sufficient to generate more ozone than can be dissolved in the liquid flow.

With respect to claims 12 and 13, the insertion of the ozone off-gas destruction means of Burris into the device Contreras (as stated above for the rejection of claim 1) would result in device that includes a porous hydrophobic barrier (24) that prevents any

liquid from entering the ozone reducing material (26) of the ozone destruct unit. It would have been obvious to one of ordinary skill in the art to substitute the check valve protecting the ozone generator of Contreras with the porous, hydrophobic barrier means (element (24)) of Burris since during a shutdown operation the element (24) would enable ozone off-gas to pass to the destruct unit (26) while at the same time prevent water from entering the destruct unit or the ozone generator via tubing (26).

With respect to claim 14, Contreras does provide a liquid source via inlet port (1). This source of water is preferably non-pressurized, however, it does not eliminate the use of pressurized water (see col. 2, lines 57-65). Therefore, the water from the water entry line may be pressurized and thus provides at least some of the pressure to circulate and output the ozonated liquid though waterline (11) (see figure).

With respect to claim 16, Burris discloses the use of a drain (57) from a reservoir (36). Pump (53) pressurizes the circulation system and ozonated water that is not used is output through the drain (57) (see figure 9; see col. 7, lines 32-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a drain line (57) into the liquid circulation line of Contreras in order to dispose of any unused ozonated water as exemplified by Burris.

With respect to claim 17, Contreras clearly teaches the use of the invention for dental operatory procedures (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that use of the device in a dental operatory procedure includes fluidly connecting all necessary dental operatory equipment requiring water, including a cuspidor drain structure, to the water

ozonating system, in order to ensure that the surfaces and sources of water are clean and sterile.

With respect to claim 23, Burris discloses the use of dried air that has passed though a dryer to help keep moisture out of the ozone generator (see col. 3, lines 7-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a dryer and supply dried air to the ozone generator of Contreras as exemplified by Burris in order to prevent moisture from getting into the ozone generator.

With respect to claims 27-29, Contreras clearly discloses that the device may be used in dental operatory procedures for supplying sterile water (see abstract). It is well known that in dental operatory procedures the dental tools are air powered and often used in combination with water dispensing/rinsing devices. Thus, it is obvious that when the device of Contreras is used in a dental operatory procedures an ozonated water dispensing means (for example, a nozzle having a valve for turning on and off) would be connected to the device and furthermore is located very near air powered dental handpieces. It should be noted that the limitations of claim 29 do not further limit the structure of the claimed device. The claimed device does not require a source of air pressure, but only a valved dispensing means that is responsive to air pressure. A valved dispensing means that is responsive to air pressure is inherently disclosed by Contreras when the device is used in a dental operatory procedure.

With respect to claim 30, Contreras teaches a water ozonating system having a corona discharge ozone generator coupled to a water reservoir and pressurized liquid

circulation system, to dispense active, disinfecting ozonated water to the circulation lines of a dental operatory unit to kill microorganisms therein. A check valve is provided to ensure that water does not reach the ozone generator, pressure control means are provided including a pump (10) for pressurized circulation and thus pressure regulation of the ozonated water. Control means are further provided to control activation, operation and delivery of the water (ball valve (3) to control water flow, a float valve (4) to regulate the incoming water level, and a water flow sensor (20) to activate the pump (10) (see col. 2, lines 58-68; see col. 3, lines 47-50). Ozone is mixed with the water in the reservoir through a diffuser and the action of the pump means and a venturi. Off gas is captured and returned to the reservoir (see the abstract, column 3, lines 35-68 and column 4, lines 11-20). Although Contreras does not explicitly use the term "control means" it is clear that the device inherently has control means because Contreras states that the system provides for automatic replenishment of fresh water whenever active-ozonated water is used (see coil. 2, lines 47-56). More specifically, the control system includes a ball valve (3) to control water flow, a float valve (4) to regulate the incoming water level, a water flow sensor (20) to activate the pump (10), and a solenoid valve (7) to shut off the water supply in response to activation of overflow switch (6) (see col. 2, lines 58-68; see col. 3, lines 1-10, 47-50). These components all form part of a control system which ensures that the device operates as desired to produce liquid containing dissolved ozone and to circulate and output liquid containing dissolved ozone. Furthermore, the control system is capable of shutting down the device after a period of non-use. Contreras discloses the use of multiple sensors (water flow sensor

(20) and overflow safety switch (6) mounted in the tank (2)) to prevent the tank form spilling over into the environment. A solenoid valve (7) (part of the control system) will shut the incoming water into the storage tank (2) when activated by the overflow safety switch (see col. 3, lines 1-10). Thus, Contreras teaches the claimed control system and sensor.

Burris et al., '993 teach a water purification device for point-of-use application wherein there is a liquid source, a corona discharge ozone generator, hydrophobic means (element (24)) for preventing access to the ozone generator by the liquid (see col. 3, lines 44-56), means for mixing the ozone and liquid, means for circulating the ozonated liquid, means for separating excess ozone gas from the ozonated liquid and destroying that excess ozone prior to atmospheric release, and means for maintaining the liquid source. Burris et al., '993 provide a positive pressure pump for mixing and circulating the ozonated water, while teaching the equivalence of static diffusers and venturi means, as well. Burris et al., '993 teach the use of the device for provision within offices or compact location such as under sinks. See column 2, lines 40-68, column 3, lines 5-35 and 55-68, column 4, line 23 through column 5, line 35, and the figures.

It would have been well within the purview of one of ordinary skill in the art to employ the ozone off-gas destruction means of Burris in the system of Contreras, because it would provide for the safe disposal of that off-gas if the system requires abrupt shut-down which would not allow for the time consuming, natural dissipation of the off-gas as required by return of the off-gas to the reservoir.

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Burris ('993) in view of Contreras.

Burris Figure 5 shows "an in-line system for pumping liquid from a reservoir to a purified liquid container while contacting the liquid with ozone to ensure its purification." (Col. 1, 11.60-63). The system 35 includes:

A liquid source, i.e., reservoir 36, which can be refilled on a batch basis preferably via trap 37 or from a pressurized supply line. (Col 5, 11.28-29; col. 7, 11.35-37);

An ozone generator 15 for producing an ozone containing gas. (Col. 2, 11.56-58). Generator 15 is preferably a corona discharge generator. (Col. 2, 11.62-64).

A protection system, check valve 18, "that allows gas to pass through but prevents any liquid backflow from reaching generator 15." (Col. 2, 11.59-62).

An ozone mixing system, pumping system 20, "contacts the liquid with ozone containing gas from generator 15 so that the liquid is purified." (Col. 2, 11.46-49). The limitation of independent claims 1 and 30 of "to produce a quantity of ozonated liquid that is, when the device is operating, greater than the amount that is demanded by the operatory unit" is a functional limitation directed to the intended use of the device and the device of Burris teaches an ozone mixing system that is capable of functioning as claimed. Specifically, Burris discloses mixing generated ozone with water to produce an ozonated liquid wherein the ozonated water is produced on demand and re-circulated in the system, thus there is always ozonated water available in the lines and the amount is therefore greater than the amount demanded by the operatory unit (see col. 3).

A continuous circulation system, i.e., circulation loop, draws liquid from reservoir 36 via line 16 through pumping system 20 (which is a pressure regulator) and returns purified liquid to the reservoir via line 41. Therefore, the circulation system re-circulates liquid containing dissolved ozone and is capable of continuous circulation (Col. 5, 11.59-67).

A separation system, i.e., reservoir 36, for separating gas and liquid from the ozonated liquid prior to circulation. (Col. 5, 11.24-25).

A reducing system, i.e., ozone reducer 23, containing a material for reducing the concentration of ozone in any gas entering the atmosphere. (Col. 3, 11.25-27).

A liquid admitting system, i.e., trap 37, for adding liquid to reservoir 36. (Col. 7, 11.4-5).

A control system (30) for controlling the device to operate as desired to produce liquid containing dissolved ozone and to circulate and output liquid containing dissolved ozone, said control system further including an ozone sensor (25), located in said liquid circulation passageway, the ozone sensor (25) connected to said control system (30) and said control system further connected to an alarm to indicate whether the device is operating properly. The activation of the alarm results in the ozone generator shutting down (see col. 4, lines 23-33). The control system (30) controls operation of pumping system (20), ozone generator (15) (see col. 3, lines 57-68).

However, Burris fails to explicitly disclose the point of use application of the ozonated water generated by the device.

Contreras teaches a water ozonating system having a corona discharge ozone generator coupled to a water reservoir and pressurized liquid circulation system, to dispense active, disinfecting ozonated water to the circulation lines of a dental operatory unit to kill microorganisms therein (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the outlet of the device disclosed by Burris to an operatory unit in order to supply the operatory unit with sterile water as exemplified by the device of Contreras whom teaches that it is well known to generate sterilize ozonated water for use in operatory units.

7. Claims 1-3, 5, 7-16, 18, 20-23, 25-29, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhard et al. (U.S. patent No. 5,942,125) in view of Burris ('993).

Engelhard et al., teach substantially the invention as claimed, namely an ozone generator connected to a source of Compressed air and a water line, with means to mix ozone and water to provide an active, ozonated water for distribution to the circulation lines of a dental operatory unit. Pressure control and monitoring means are provided as well as ozone sensors, and the operation of the system is controlled based on those measured parameters. The limitation of independent claims 1 and 30 of "to produce a quantity of ozonated liquid that is, when the device is operating, greater than the amount that is demanded by the operatory unit" is a functional limitation directed to the intended use of the device and the device of Engelhard teaches an ozone mixing

system that is capable of functioning as claimed. Specifically, Engelhard discloses mixing generated ozone with water to produce an ozonated liquid wherein the concentration of ozone may be controlled or varied depending upon a desired concentration and the amount of ozonated water generated can be controlled by always having ozonated water available on demand in the water lines and continuously produced as it is being used or demanded (see col. 3, line 57 to col. 4, line 42). Off gas is sent through means to destroy any residual ozone prior to release to the atmosphere. Means are also provided to protect the ozone generator from contact with water. The ozone generator of Engelhard et al. is an UV generator. See column 2, lines 33-40, column 3, lines 35-68, column 4, lines 10-20 and lines 31-43, and column 5, lines 10-35. Burris is applied as set forth above.

It would have been well within the purview of one of ordinary skill in the art to substitute the corona discharge ozone generation means of Burris for the UV generator of Engelhard et al., because of their conventionally recognized functional equivalence.

Furthermore, Burris discloses a control system (30) which includes an ozone sensor (25) and an alarm to indicate that the system is not functioning properly. The activation of the alarm results in the ozone generator shutting down (see col. 4, lines 23-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Engelhard and employ a control system comprising an ozone sensor locate in the liquid circulation passageway and an alarm as exemplified by Burris in order to ensure that the water contains dissolved ozone. In

addition, the control system is capable of shutting down the pump system (20) in response to a lack of supply water (see col. 4, lines 33-34).

With respect to claim 5, Engelhard discloses an ozone generator (16) which is capable of generating more ozone than can be dissolved in water if that is the desired intended use of the device. One could reduce the water flow such that only a few drops of water enter the tank (12) and thus the ozone filling the tank (12) would be more than can be dissolved in the liquid flow (see col. 3,lines 35-56; see figures 1-2). Therefore, the ozone generator is of size sufficient size to generate more ozone than can be dissolved in the liquid flow.

With respect to claims 8 and 9, Engelhard discloses the use of a sparger (32) to inject ozone into the water. The sparger (32) functions as a static mixer (see figures 1-2; see col. 3, lines 50-56).

With respect to claim 13, it would have been obvious to one of ordinary skill in the art to substitute the check valve protecting the ozone generator of Engelhard et al., with the porous, hydrophobic barrier means of Burris because it would provide a more simply means of protecting the generator irrespective of the pressure within the system and without mechanically moving parts.

With respect to claim 14, Engelhard discloses that water is introduced into the system via water line (14) (see figure 1; see col. 3, lines 35-38). All water is under some amount of pressure as it is introduced. Therefore, the pressure in the water is capable of providing pressure to circulate and output the ozonated fluid if so desired.

With respect to claims 16 and 17, Engelhard discloses a drain (70) connected to a waste line (82) capable of functioning as claimed (see figure 1 ; see col. 4, lines 21-42).

With respect to claim 23, Burris discloses the use of dried air that has passed though a dryer to help keep moisture out of the ozone generator (see col. 3, lines 7-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a dryer and supply dried air to the ozone generator of Engelhard as exemplified by Burris in order to prevent moisture from getting into the ozone generator.

With respect to claims 27-29, Engelhard teaches that the ozonated water produced within container (12) is discharged into conduit (62). The conduit serves as a water line to provide ozonated water to a manifold attached to each dental chair and in fluid communication with dental implements and other devices that normally discharge the water received (i.e. valved dispensers) (see col. 4, lines 10-20). It should be noted that the limitations of claim 29 do not further limit the structure of the claimed device. The claimed device does not require a source of air pressure, but only a valved dispensing means that is responsive to air pressure.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engelhard in view of Burris ('993) or Contreras in view of Burris ('993) as applied to claim 1 above, and further in view of McMahon (U.S. Patent No. 5,681,370)

The combination of Engelhard et al. in view of Burris ('993) and Contreras in view of Burris ('993) is set forth above with regards to claim 1, however, neither combination appears to explicitly disclose how the air is dried for the source of oxygen for the ozone generator. Thus, it would have been necessary and thus obvious to look to the prior art for conventional means of drying air for an ozone generator. McMahon provides this conventional teaching showing that it is known in the art to use a desiccant material (50) to dry the air that is to be used to generate the ozone, wherein the desiccant material is protected from moist air by valves (78, 88) (see col. 1, see cols. 5- 7, see col. 8, lines 10-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a desiccant air drier as exemplified by McMahon motivated by the expectation of successfully practicing the invention of either the combination of Engelhard et al. in view of Burris ('993) or Contreras in view of Burris ('993).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Marcheschi can be reached on 571-272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

September 7, 2011

/SEAN E CONLEY/
Primary Examiner, Art Unit 1775